

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference M34050003P003PC	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US04/23704	International filing date (<i>day/month/year</i>) 23 July 2004 (23.07.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 25 July 2003 (25.07.2003)
Applicant MEADWESTVACO CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. Certain claims were found unsearchable (See Box I).

3. Unity of invention is lacking (See Box II).

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 2



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures

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Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

ABSTRACT

In accordance with a preferred embodiment of the invention, an antenna structure is provided having one or more antennas (100) arranged so as to read all possible orientations of a randomly placed tag (111, 112). Also provided in accordance with a preferred embodiment of the invention, is a method of configuring one or more antennae composed of the steps of: identifying the "dead zones" of each discrete antennae used, and orienting each antennae such that there are no "dead zones" common to all antennae. The unique antenna structure (and corresponding method) has particular application in tag reader antenna systems for use in RFID (radio frequency identification) applications (13.56 MHz) and the like. In accordance with an exemplary embodiment, multiple RF (radio frequency) antennae are utilized as part of an intelligent station to track items tagged with radio frequency identification (RFID) tags.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01Q 21/00, 11/12
 US CL : 343/741, 742, 866, 867, 855, 853, 872

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 343/741, 742, 866, 867, 855, 853, 872

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,069,564 A (HATANO et al) 30 May 2000 (30.05.2000), Figures 3-7B; column 4, line 28 - column 5, line 37.	1, 2, 12-15, 25, 26
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A		3-11, 16-24, 27
A,P	US 6,700,547 B2 (MEJIA et al) 02 March 2004 (02.03.2004), Figure 3.	1-27
A,P	US 6,720,930 B2 (JOHNSON et al) 13 April 2004 (13.04.2004), Figures 1-2.	1-27

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance		
"E" earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

23 December 2004 (23.12.2004)

Date of mailing of the international search report

24 MAR 2005

Name and mailing address of the ISA/US

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